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RELATIONS BETWEEN SOW GASTRIC LESIONS AND DIET

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Introduction

Autopsies of dead sows in a large number of Danish swine herds revealed that bleeding gastric ulcers were the third most common cause of death (1). In an abattoir survey, gastric lesions (GLs) were diagnosed in 45% of healthy slaughtered sows (2).

GLs in swine occur mainly in the oesophageal region of the stomach. The pars oesophagica is a non-glandular region lined with stratified epithelium. Due to the lack of mucus secretion in this area, the epithelium is less protected against injuries caused by low pH and gastric enzymes. In fatteners, finely ground, pelleted feed or feed with low fibre content increases the risk of GLs due to higher fluidity and mixing of the stomach contents, which causes higher pepsin concentrations and lower pH in the proximal part of the stomach (3,4). In the present study, the prevalence of GLs was investigated in two sow herds in relation to diet fibre content.

Materials and Methods

The study was carried out in two sow herds with a high prevalence of gastric lesions. Two feeding strategies were applied within each herd. One was a traditional feed ration (diet 1) while the other was supplemented with additional fibre (diet 2) in the form of either beet root pulp (herd 1) or oats (herd 2).

A total of 400 sows were randomly chosen amongst culled sows sent to slaughter. Diagnoses of gastric lesions were performed by post mortem scorings on emptied and inverted stomachs according to Table 1.

Table 1 Scoring of gastric lesions. Severe gastric lesions were defined as GL indexes 6-10.

Gastric lesion	Definition	GL Index
Normal	No lesions	0
Hyperkeratosis	1 mm	1
	2 mm	2
	3 mm	3
Erosions	<1%	4
	1-10%	5
Ulcer	<1%	6
	1-10%	7
	>10%	8
Oesophageal stricture	3 mm < Diameter ≤ 10 mm	9
	Diameter ≤ 3 mm	10
Scarring only i.e. no acute ulcers	<1%	11
	1-10%	12
	>10%	13

Results

In herd 1, GLs occurred in 98% of sows on both diet 1 (D1H1) and diet 2 (D2H1). In herd 2, GLs occurred in 97% of sows on both diet 1 (D1H2) and diet 2 (D2H2). I.e. no effect of diet was seen on GL prevalences overall.

However, the diet had an effect on occurrence of severe gastric lesions (SGLs; indexes 6-10) (Figure 1).

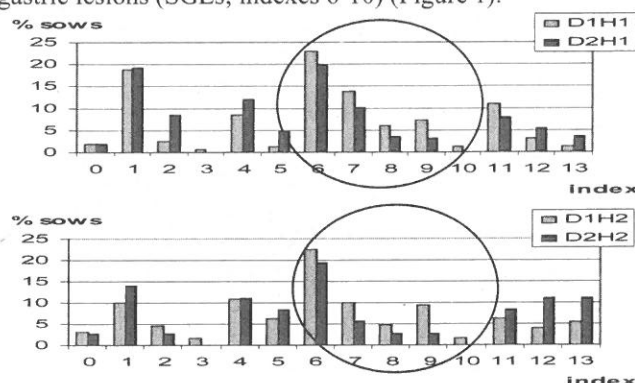


Figure 1 Gastric lesion prevalences in herd 1 (upper figure) and 2 (lower figure), in relation to the original conventional diet in each herd (D1H1 and D1H2) and after changing to the test diets with high fibre content (D2H1 and D2H2). Circles contain SGLs.

Sows on D2H1 had 37% SGLs versus 52% SGLs on D1H1 ($p=0.008$), and similarly sows in herd 2 had 31% SGLs when fed on D2H2 compared to 48% SGLs when fed on D1H2 ($p=0.09$). Productivity results showed significantly lower slaughter weights in sows with GL indexes 9-10, compared to sows with indexes 0-8 and 11-13 (Figure 2) ($p=0.002$ and $p=0.006$, in herd 1 and 2).

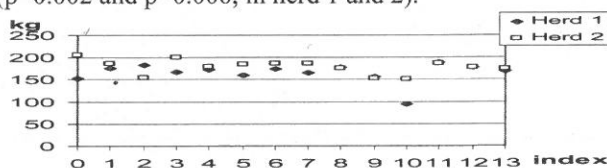


Figure 2 Slaughter weight in relation to GL index in the two herds.

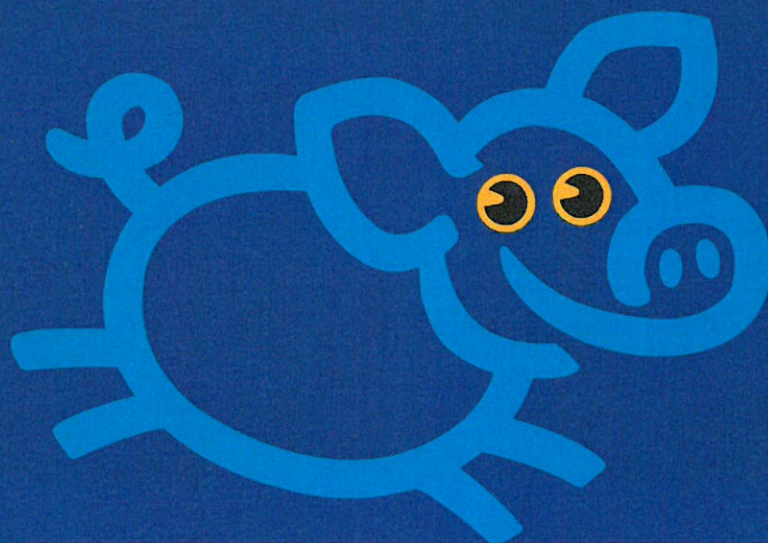
Discussion

Although the overall prevalence of GLs in two herds was not influenced by higher diet fibre content, both herds experienced a reduction in the GL severity. The GL severity in sows is probably important in relation to productivity as can be seen from the influence of GL index on slaughter weight. It most likely also influences the herd mortality rate. The diet fibre content did not influence the slaughter weight.

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